

THE ASTROPHYSICAL JOURNAL
CONTENTS OF VOLUME 353, PART 1

1990 APRIL 10, Number 1

	Page	Fiche
ANALYZING COSMOLOGICAL PERTURBATIONS USING THE COVARIANT APPROACH <i>Jai-chan Hwang and Ethan T. Vishniac</i>	1	62-B1
FURTHER CORRECTIONS TO THE THEORY OF COSMOLOGICAL RECOMBINATION <i>Julian H. Krolik</i>	21	62-C9
QUASAR COLORS: STATISTICS AND COSMOLOGICAL EVOLUTION <i>Emanuele Gallioglio and Dario Trevese</i>	24	62-D1
FAINT RADIO SOURCES AND GRAVITATIONAL LENSING <i>Glen I. Langston, Samuel R. Conner, Michael B. Hefflin, Joseph Lehár, and Bernard F. Burke</i>	34	62-E1
THE RELATIVE SPATIAL DISTRIBUTIONS OF HIGH- AND LOW-LUMINOSITY GALAXIES TOWARD COMA <i>John J. Salzer, Margaret Murray Hanson, and Giuseppe Gavazzi</i>	39	62-E7
THE TWO-POINT CORRELATION FUNCTION FOR GROUPS OF GALAXIES IN THE CENTER FOR ASTROPHYSICS REDSHIFT SURVEY <i>Massimo Ramella, Margaret J. Geller, and John P. Huchra</i>	51	62-F7
ON THE PREVALENCE OF r^{-3} DENSITY PROFILES IN EXTRAGALACTIC SYSTEMS <i>Eyal Maoz and Jacob D. Bekenstein</i>	59	62-G1
SHOCK-DRIFT PARTICLE ACCELERATION IN SUPERLUMINAL SHOCKS: A MODEL FOR HOT SPOTS IN EXTRAGALACTIC RADIO SOURCES <i>Mitchell C. Begelman and John G. Kirk</i>	66	62-G9
NEUTRON STARS AND WHITE DWARFS IN GALACTIC HALOS? <i>Dongsu Ryu, Keith A. Olive, and Joseph Silk</i>	81	63-B1
LUMINOSITY-VELOCITY DIAGRAMS FOR VIRGO CLUSTER SPIRALS. I. INNER ROTATION CURVES <i>David Woods, Barry F. Madore, and Gregory G. Fahrlman</i>	90	63-C1
THE EVOLUTION OF THE CENTRAL BLACK HOLE IN AN ACTIVE GALACTIC NUCLEUS. II. EVOLUTION WITH AN EXPONENTIALLY DECREASING MASS INFUX <i>Seok Jae Park and Ethan T. Vishniac</i>	103	63-D1
HIGH-RATE SPECTROSCOPIC ACTIVE GALACTIC NUCLEUS MONITORING AT THE WISE OBSERVATORY. II. NGC 5548 <i>H. Netzer, D. Maoz, A. Laor, H. Mendelson, N. Brosch, E. Leibowitz, E. Almoznina, S. Beck, and T. Mazeh</i>	108	63-D7
THE HIGH-LUMINOSITY BL LACERTAE OBJECT PKS 0823-22 <i>Renato Falomo</i>	114	63-E1
CONSTRAINTS ON THE MASS DISTRIBUTION NEAR THE CENTERS OF M31 AND M32 <i>Douglas Richstone, Gary Bower, and Alan Dressler</i>	118	63-E5
ELEMENTAL ABUNDANCES OF THE BROAD ABSORPTION-LINE GAS OF QUASARS <i>John Kwan</i>	123	63-F1
HIGH-DENSITY MOLECULAR GAS IN EXTERNAL GALAXIES: FORMALDEHYDE AND CARBON MONOSULFIDE <i>Willem A. Baan, Christian Henkel, Peter Schilke, Rainer Mauersberger, and Rolf Güsten</i>	132	63-G1
A SEARCH FOR ANISOTROPY IN THE COSMIC MICROWAVE RADIATION AT MEDIUM ANGULAR SCALES <i>Peter T. Timbie and David T. Wilkinson</i>	140	63-G9
ON THE DIPOLE AND QUADRUPOLE KINEMATIC ANISOTROPY IN THE BRIGHTNESS OF THE COSMIC BACKGROUND RADIATION <i>P. de Bernardis, M. Epifani, G. Guarini, S. Masi, F. Melchiorri, and B. Melchiorri</i>	145	64-A1
DIFFUSIVE COSMIC-RAY ACCELERATION: TWO-FLUID MODELS WITH <i>IN SITU</i> INJECTION <i>Hyesung Kang and T. W. Jones</i>	149	64-A7
NEUTRON STARS AND MILLISECOND PULSARS FROM ACCRETION-INDUCED COLLAPSE IN GLOBULAR CLUSTERS <i>Charles D. Bailyn and Jonathan E. Grindlay</i>	159	64-B5
PARKES H I OBSERVATIONS OF SOUTHERN GLOBULAR CLUSTERS: IMPLICATIONS FOR STELLAR MASS LOSS <i>Graeme H. Smith, Peter R. Wood, D. J. Faulkner, and Alan E. Wright</i>	168	64-C1
NEAR-INFRARED PHOTOMETRIC STUDY OF OPEN STAR CLUSTER IC 1805..... <i>Ram Sagar and Qian Zhong Yu</i>	174	64-C7

CONTENTS

	Page	Fiche
IONIZED CARBON IN SIDE-ILLUMINATED MOLECULAR CLOUDS <i>R. T. Boreiko, A. L. Betz, and J. Zmuidzinas</i>	181	64-D1
WARM DENSE GAS IN THE REFLECTION NEBULA NGC 2023 <i>D. T. Jaffe, R. Genzel, A. I. Harris, J. E. Howe, G. J. Stacey, and J. Stutzki</i>	193	64-E1
CCD IMAGERY OF PLANETARY NUCLEI: THE PROPERTIES OF THE CENTRAL STARS OF NGC 2440 AND NGC 7027 <i>Sara R. Heap and Paul Hintzen</i>	200	64-E9
THE SPECTRA OF WEAKLY MAGNETIZED NEUTRON STARS <i>Albert Fu and Ronald E. Taam</i>	205	64-F3
ON THE CONSEQUENCES OF LOW-MASS WHITE DWARF MERGERS <i>Icko Iben, Jr.</i>	215	64-G1
SPECTRAL AND ISOPHOTAL APPEARANCE OF THREE-DIMENSIONAL PROTOSTELLAR MODELS <i>Alan P. Boss and Harold W. Yorke</i>	236	65-A9
A CHARGE MOMENT METHOD FOR TIME-DEPENDENT RADIATIVE COOLING OF HOT OPTICALLY THIN PLASMAS <i>T. J. Gaetz</i>	245	65-B5
ON THE GENERATION OF MASS LOSS IN COOL GIANT STARS DUE TO PROPAGATING SHOCK WAVES ... <i>Manfred Cuntz</i>	255	65-C1
DYNAMIC SPECTRA OF RADIO BURSTS FROM FLARE STARS <i>T. S. Bastian, J. Bookbinder, G. A. Dulk, and M. Davis</i>	265	65-D1
DISCOVERY OF A CYCLOTRON ABSORPTION LINE IN THE SPECTRUM OF THE BINARY X-RAY PULSAR 4U 1538-52 OBSERVED BY GINGA <i>George W. Clark, Jonathan W. Woo, Fumiaki Nagase, Kazuo Makishima, and Taro Sakao</i>	274	65-E8
HIGH-VELOCITY INTERSTELLAR GAS IN THE LINES OF SIGHT TO THE WOLF-RAYET STARS HD 97152 AND HD 96548 <i>Jay Nichols-Bohlin and Robert A. Fesen</i>	281	65-F1
ENERGETIC NEUTRAL ATOMS IN COMETARY COMAE <i>W.-H. Ip</i>	290	65-G3
THE NONLINEAR EVOLUTION OF MAGNETIZED SOLAR FILAMENTS <i>L. Sparks, G. Van Hoven, and D. D. Schnack</i>	297	66-A1
X-RAY OBSERVATIONS OF TWO SHORT BUT INTENSE SOLAR FLARES <i>Nariaki Nitta, Brian R. Dennis, and Alan L. Kiplinger</i>	313	66-B5
Fe xv LINE RATIOS IN THE SUN: DISCREPANCIES BETWEEN THEORY AND OBSERVATIONS <i>P. L. Dufton, A. E. Kingston, and K. G. Widing</i>	323	66-C1

1990 APRIL 20, Number 2

PROPERTIES OF CLUSTERS OF GALAXIES IN THE EXPLOSION SCENARIO <i>Michael J. West, David H. Weinberg, and Avishai Dekel</i>	329	68-C1
PECULIAR VELOCITIES IN LARGE-SCALE STRUCTURE: THE PROBLEM OF INCOMPLETE SAMPLING <i>Gregory D. Bothun, Michael J. West, Jeremy R. Mould, and R. A. Schommer</i>	344	68-D3
STRUCTURE IN THE UNIVERSE ON SCALES OF 10-100 Mpc: ANALYSIS OF A NEW DEEP RADIO SURVEY AND OF THE ABELL CLUSTER CATALOG <i>Paul H. Coleman and William C. Saslaw</i>	354	68-E1
CONSTRAINTS ON THE AMPLITUDE OF PRIMORDIAL DENSITY FLUCTUATIONS FROM THE LARGE-SCALE COSMIC MICROWAVE BACKGROUND TEMPERATURE DISTRIBUTION <i>Roberto Scaramella and Nicola Vittorio</i>	372	68-F6
REHEATING OF THE UNIVERSE BY UNSTABLE NEUTRINOS AND COSMIC BACKGROUND RADIATION DISTORTION <i>M. Fukugita and M. Kawasaki</i>	384	68-G5
A COMPTONIZATION MODEL FOR THE SUBMILLIMETER BACKGROUND <i>James G. Bartlett and Joseph Silk</i>	399	69-A7
BIG BANG NUCLEOSYNTHESIS AND THE QUARK-HADRON TRANSITION <i>Hannu Kurki-Suonio, Richard A. Matzner, Keith A. Olive, and David N. Schramm</i>	406	69-B1
ARE HIGH-REDSHIFT QUASARS HIDDEN BY DUSTY GALAXIES? <i>Edward L. Wright</i>	411	69-B7
THE EMPIRICAL DIFFERENCE BETWEEN RADIO-LOUD AND RADIO-QUIET QUASARS <i>Robert Antonucci, Richard Barvainis, and Danielle Alloin</i>	416	69-B13
ON THE OPTICAL-TO-PAR-INFRARED SPECTRAL ENERGY DISTRIBUTIONS OF RADIO-QUIET QUASARS <i>Richard Barvainis</i>	419	69-C3

CONTENTS

v

	Page	Fiche
THE STRENGTH OF OPTICAL Fe II EMISSION IN QUASI-STELLAR OBJECTS	<i>Wei Zheng and Paul T. O'Brien</i>	433 69-D4
THE MASS FUNCTION OF SEYFERT I NUCLEI	<i>P. Padovani, R. Burg, and R. A. Edelson</i>	438 69-D10
THE NUCLEAR REGION OF NGC 7469	<i>Charles J. Bonatto and Miriani G. Pastoriza</i>	445 69-E4
THERMAL COMPTONIZATION IN STANDARD ACCRETION DISKS	<i>L. Maraschi and S. Molendi</i>	452 69-E12
THE ASYMMETRIC CO DISTRIBUTION IN THE VIRGO CLUSTER SPIRAL NGC 4419 <i>Jeffrey D. P. Kenney, Judith S. Young, Tetsuo Hasegawa, and Neomasa Nakai</i>	460	69-F7
HEILES SHELLS IN NGC 3079	<i>Judith A. Irwin and E. R. Sequist</i>	469 69-G4
ON SPECTRAL AGING IN LOBES OF DOUBLE RADIO SOURCES	<i>Paul J. Wiita and Gopal-Krishna</i>	476 70-A1
DUST-GRAIN SCATTERING OF X-RAYS OBSERVED DURING THE LUNAR OCCULTATION OF A TRANSIENT X-RAY SOURCE NEAR THE GALACTIC CENTER	<i>Kazuhsisa Mitsuda, Toshiaki Takeshima, Tsuneo Kii, and Nobuyuki Kawai</i>	480 70-A6
THE LOCAL GALACTIC ESCAPE SPEED	<i>Peter J. T. Leonard and Scott Tremaine</i>	486 70-A13
GALACTIC BULGE M GIANTS. II. CONTENT AND STRUCTURE OF THE BULGE BETWEEN $b = -3^\circ$ AND -12° <i>Jay A. Frogel, D. M. Terndrup, V. M. Blanco, and A. E. Whitford</i>	494	70-B8
THE ACTIVITY, VARIABILITY, AND ROTATION OF LOWER MAIN-SEQUENCE MEMBERS OF THE COMA STAR CLUSTER	<i>Richard R. Radick, Brian A. Skiff, and G. W. Lockwood</i>	524 70-D12
CN AND CH VARIATIONS AMONG GIANTS IN THE GLOBULAR CLUSTER M2	<i>Graeme H. Smith and Mario Mateo</i>	533 70-E8
QUENCHED CARBONACEOUS COMPOSITE. III. COMPARISON TO THE 3.29 MICRON INTERSTELLAR EMISSION FEATURE	<i>A. Sakata, S. Wada, T. Onaka, and A. T. Tokunaga</i>	543 70-F5
HIGH-RESOLUTION 8-13 MICRON IMAGING OF THE PLANETARY NEBULAE BD $+30^\circ 3639$ AND NGC 6572 <i>Joseph L. Hora, Lynne K. Deutsch, William F. Hoffmann, and Giovanni G. Fazio</i>	549	70-F13
FAR-INFRARED OBSERVATIONS OF G351.6-1.3/G351.7-1.2 REGION <i>S. K. Ghosh, K. V. K. Iyengar, T. N. Rengarajan, S. N. Tandon, R. P. Verma, and R. R. Daniel</i>	564	71-A1
COMETARY COMPACT H II REGIONS ARE STELLAR-WIND BOW SHOCKS <i>Dave Van Buren, Mordecai-Mark Mac Low, Douglas O. S. Wood, and Ed Churchwell</i>	570	71-A8
CONFORMALLY SYMMETRIC SPHERES IN THE THIN WALL APPROXIMATION	<i>L. Herrera, J. Ibáñez, and A. Di Prisco</i>	579 71-B4
BLACK HOLE X-RAY TRANSIENTS	<i>Jean-Marie Hameury, Andrew R. King, and Jean-Pierre Lasota</i>	585 71-B11
A CHAOTIC ATTRACTOR IN TIMING NOISE FROM THE VELA PULSTAR? <i>Alice K. Harding, Troy Shinbrot, and James M. Cordes</i>	588	71-C1
THE EFFECT OF IRON CORE STRUCTURE ON SUPERNOVAE	<i>E. Baron and J. Cooperstein</i>	597 71-C12
POSSIBLE DETECTION OF AN EMISSION FEATURE NEAR 584 Å IN THE DIRECTION OF G191-B2B <i>James Green, Stuart Bowyer, and Patrick Jelinsky</i>	612	71-E1
TERMINAL VELOCITIES OF THE WINDS FROM RAPIDLY ROTATING OB STARS	<i>David B. Friend</i>	617 71-E7
CHROMOSPHERES OF METAL-DEFICIENT FIELD GIANTS	<i>A. K. Dupree, L. Hartmann, and Graeme H. Smith</i>	623 71-F1
INTERSPECIES EMISSION-LINE RATIOS AS ELECTRON DENSITY DIAGNOSTICS FOR LATE-TYPE STELLAR ATMOSPHERES	<i>F. P. Keenan, P. L. Dufton, and A. E. Kingston</i>	636 71-G1
HIGH-RESOLUTION SPECTROSCOPY OF THE C ₂ SWAN 0-0 BAND FROM COMET P/HALLEY <i>D. L. Lambert, Y. Sheffer, A. C. Danks, C. Arpigny, and P. Magain</i>	640	71-G6
SPIRAL WAVES AND INSTABILITY IN MAGNETIZED ASTROPHYSICAL DISKS <i>M. Tagger, R. N. Henriksen, J. F. Sygnet, and R. Pellat</i>	654	72-A8
LINEAR TEARING MODES OF A FORCED CURRENT-SHEET EQUILIBRIUM	<i>Pauletta C. Liewer and David G. Payne</i>	658 72-A13
ENHANCED RADIATION DRIVEN BY A DC ELECTRIC FIELD	<i>T. Tajima, A. O. Benz, M. Thaker, and J.-N. Leboeuf</i>	666 72-B8
NONLINEAR BEHAVIOR OF SOLAR GRAVITY MODES DRIVEN BY ³ He IN THE CORE. I. BIFURCATION ANALYSIS <i>William J. Merryfield, Juri Toomre, and Douglas Gough</i>	678	72-C8
OSCILLATIONS OF CONDENSED-OUT IRON AND COSMION SOLAR MODELS <i>Arthur N. Cox, Joyce A. Guzik, and Stuart Raby</i>	698	72-E1

CONTENTS

	Page	Fiche
INFRARED IMAGING OF FACULAE AT THE DEEPEST PHOTOSPHERIC LAYERS <i>P. Foukal, R. Little, J. Graves, D. Rabin, and D. Lynch</i>	712	72-F1
ABSTRACTS OF THE ASTROPHYSICAL JOURNAL SUPPLEMENT SERIES, 1990 MAY ISSUE		
OBSERVATIONAL TESTS FOR THE EVOLUTION OF MASSIVE STARS IN NEARBY GALAXIES	716	72-G1
LITHIUM IN HALO STARS FROM STANDARD STELLAR EVOLUTION <i>Constantine P. Deliyannis, Pierre Demarque, and Steven D. Kawaler</i>	716	72-G1
CARBON, NITROGEN, AND OXYGEN ABUNDANCES IN THE CHEMICALLY PECULIAR STARS OF THE UPPER MAIN SEQUENCE <i>Scott W. Roby and David L. Lambert</i>	717	72-G2
RAPID CONTINUUM LEVEL VARIABILITY IN Be STARS EARLIER THAN B2	717	72-G2
NEW TABULATION OF THE BOUND-CONTINUUM OPTICAL OSCILLATOR STRENGTH IN HYDROGENIC ATOMS <i>Kazem Omidvar and Patricia T. Guimaraes</i>	718	72-G3
INDEX TO VOLUME 353, PARTS 1 AND 2		<i>See Part 2</i>

